

Contact Information

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Education

- PH.D., Computational Mathematics, 2009
 Northern Illinois University, DeKalb, IL
 Advisor: Biswa N. Datta.
- M.S., Computational Mathematics, May 2005
 GPA: 3.8
 Northern Illinois University, DeKalb, IL
- Diploma, Mathematics, June 2004
 GPA: 3.8, Graduated with honors (Red Diploma)
 Rostov State University, Rostov-on-Don, Russia
 Advisor: Lev A. Krukier
 Senior Thesis: “Investigation of eigenvalue distribution of a preconditioned matrix”.
- B.S., Mathematics, June 2003
 GPA: 3.7, Graduated with honors (Red Diploma)
 Rostov State University, Rostov-on-Don, Russia
 Advisor: Lev A. Krukier
 Senior Thesis: “QR algorithm and its parallel computer implementation”.

Experience

- November 2009-present Computational Transportation Engineer, Transportation Research and Analysis Computing Center, Argonne National Laboratory
- Fall 2007 - Fall 2009 Researcher, The Transportation Research and Analysis Computing Center, Argonne National Laboratory

- Fall 2006 - Fall 2007 Research Assistant for Biswa Datta, Northern Illinois
- Spring 2004 - Fall 2006: Teaching Assistant, Northern Illinois University, Department of Mathematics.
Calculus III, Business Calculus, Numerical Linear Algebra, Numerical Analysis. University, Department of Mathematics.
- Summer 2005: Intern, Wolfram Research Inc., Software Technologies Department (makers of Mathematica).
Developed a Mathematica package for solution of large scale control problems.
- 2002-2003: Rostov State University, High Performance Computing Center.
Worked as Linux cluster lab assistant parallel to studying. Was responsible for installing and testing software, helped writing tutorials on linear algebra packages (LAPACK, ScaLAPACK, ARPACK).

Publications (available online at: <http://www.math.niu.edu/~sokolov>)

- An Optimization Technique for Damped Model Updating with Measured Data Satisfying Quadratic Orthogonality Constraint, *Mechanical Systems and Signal Processing*, 23 (2009), pp. 1759-1772, with B. Datta, S. Deng, D. R. Sarkissian
- A New Approach to Affine Parametric Quadratic Inverse Eigenvalue Problem, in preparation, with Biswa Datta
- Reservoir model optimization under uncertainty, *IMA Preprint Series*, September 7, 2006, with Sasanka Are, Paul Dostert, Bree Ettinger, Juan Liu, Ang Wei, and Klaus Wiegand.
- Numerical investigation of Krylov subspace methods for solving non-symmetric systems of linear equations with dominant skew-symmetric part, *International Journal of Numerical Analysis And Modeling*, 2005, Volume 3, Number 1, Pages 115-124., with Lev A. Krukier and Olga A. Pichugina.
- Investigation of eigenvalue distribution of a matrix arising from a central difference approximation of the two dimensional convection diffusion problem, *Proceedings of the Conference on Numerical methods for solving linear and non-linear boundary problems, 2003, Kazan', Russia*. pp. 216-221 (Russian).
- Investigation of eigenvalue distribution of transition operators of iterative methods for solution strongly non-symmetric systems, *Proceedings of the workshop*

on contemporary problems in mathematical modeling, 2003, Durso, Russia. pp. 206 - 212, with Lev A. Krukier, (Russian).

Selected Talks

- "A New Hybrid Method for the Quadratic Affine Inverse Eigenvalue Problem", Linear Algebra and Numerical Linear Algebra: Theory, Methods, and Application, Northern Illinois University, August 2009.
- "Numerical methods for structured quadratic inverse eigenvalue problem", Conference on the Occasion of Richard Varga's 80th Birthday, Kent State University, October 2008.
- "Solution of a parametric quadratic inverse eigenvalue problem via alternating projections method", The XIXth International Workshop on Operator Theory and its Applications, College of William and Marry, July 2008
- "A New Approach to Affine Parametric Quadratic Inverse Eigenvalue", Gene Golub Symposium, University of Illinois at Urbana-Champaign, March 2008
- "A New Method for a Quadratic Inverse Eigenvalue Problem in Structural Dynamics", 2nd International Conference on Matrix Methods and Operator Equations, Institute of Numerical Mathematics of the Russian Academy Sciences, Moscow, Russia, July 2007
- "An Optimization Procedure For Model Updating via Physical Parameters", NLASSC Workshop, IIT Kharagpur, India, January 2007 (Invited Speaker)
- "Reservoir Model Optimization under Uncertainty" (final report), Mathematical Modeling in Industry X - A Workshop for Graduate Students, University of Minnesota, Minneapolis, Minnesota, August 2006.
- "Solution of Large Scale Control Problems", Wolfram Technology Conference, Champaign, October 2005.
- "Investigation of eigenvalue distribution of transition operators of iterative methods for solution strongly non-symmetric systems", Workshop on contemporary problems in mathematical modeling, Durso, Russia, September 2003.
- "Investigation of eigenvalue distribution of a matrix arising from a central difference approximation of the two dimensional convection diffusion problem" Conference on Numerical methods for solving linear and non-linear boundary problems, Kazan', Russia, June 2003.

- “Survey of the splitting methods”, Izmir Summer Academy, Cesme, Turkey, September 2002.
- “QR algorithm and its parallel computer realization”, International Summer School “Iterative Methods and Matrix computations”, Rostov-on-Don, Russia, June 2002.

Awards

- Outstanding Graduate Student Award, NIU, 2007
- Dissertation Completion Fellowship Award, NIU, 2007
- Travel Grant, Graduate School, NIU, 2007
- Travel Grant, Department Mathematical Sciences, NIU, 2007
- Travel Grant, Department Mathematical Sciences, NIU, 2006
- Travel Grant, School of Arts and Sciences, NIU, 2006

Skills

- Languages: English, Russian (native), German (basic)
- Programming: C/C++, Fortran, Python, HTML.
- Mathematical: Maple, Mathematica, MATLAB, \LaTeX .
- Transportation, GIS: TRANSIMS, ArcMap, Quantum GIS.

Academic References

Available upon request.